King County

Addendum to
2004 GIS Software Migration Plan:

KCGIS Agency Survey Comprehensive Results

KCGIS Agency Survey Comprehensive Results

General

Agency	Use level	Change in GIS Business Definition in the Next Few Years?	Growth Rate of Staff?	Biggest Challenge for GIS Business in the Next Few Years?
Budget	Low	More focus on financial functions, away from land-use-oriented functions	no change	Performing necessary functions under budgetary pressures
KCA	High	Better integration with other data systems; online on-demand apps to access GIS property information	no change	incorporating into KCA business and in real time. Making GIS access seamless for non-GIS staff
DDES	High	Likely no change	no change	Successful transition away from Arc Info 7.x/ArcView 3.x data and processes
PubHealth	Med.	Better integration into department's 3 divisions	no change	Getting GIS better organized and integrated within Public Health
DCFM	Low	Portfolio management; more and better use of GIS in the department	no change	Ramping up their GIS program and understanding the resources available; training
OEM	Med	Business definition won't change but workload will increase dramatically as additional Public Safety Answering Points (PSAPS) are brought online	no change	Keeping up with PSAP demand for more data with better currency; managing workload as more PSAPS are brought online
REALS	High	Have applications that need to be developed, but no money	no change	Uncertainty of upgrade path; deciding on how to maintain data in the new environment
GISC	High	No planned change, but subject to redefinition by sources outside their control	potential increase if they add regional clients. Interns provide flexibility, but are paid for out of salary savings	ESRI. **Funding large data initiatives, coordinating funding sources for new or ongoing big data projects.** **Building regional connections and ongoing working relationships with regional entities.** Making generic enterprise application set as flexible and usable as possible, to meet business specific needs in order to broaden use. Data coordination and data quality are paramount.
Parks	High	Possible continued contraction of Parks Dept, and resulting drop in volume of use	no change	Maintaining GIS presence in the face of drastic budget cuts in the department
SWD	Low	Increasingly clear definition of GIS business use	no change – possible slight increase	Helping SWD management and end users to understand what GIS can do for them and how to use it
WTD	High	Large and small projects will come to a close, but no general change in business definition	no change – possibility of hiring interns as needed/practical	Migration to ArcGIS; need to develop in-house programming skills
WLRD	High	No change in general; possible push toward in-house development of user tools	no change at best	ArcGIS and the Geodatabase
KCIA	Low	Potential substantial increase pending mgmt. approval of recommendation for airfield-based system. Hope for web-based delivery of information in many areas of interest	possibly a long-term intern	Integration of GIS into ongoing business functions. Educating airport users about GIS.
Roads	High	Hope to use GIS for decision support for daily business/policy; better integration of GIS into business environment	no change	Lack of spatial component to much of Roads' data. Centralizing and normalizing data from local hard drives and various formats into RDBMS environment.
Transit	High	Migration from Unix to NT environment; move of data maintenance from coverage environment to non-GIS database environment; move of GIS data to SDE; comprehensive evaluation of GIS use in Transit; TNET requires shift of control of regional transportation from Transit to distributed regional agencies	no change	New technology and the migration
Sheriff	Low	No significant change	no change	Web interface; cleaning up the street file in NE and SE King Co to allow better interactive and batch address matching
Council	Low	Likely no change	no change	Creating a more robust internal utilization of spatial analysis functions

Budget

Agency	Current Budget:						Future Budget:					
	Staff	Hdwe	Software	Training	Discretionary	Comment	Hdwe	Software	Data	Analysis	Training	Comment
Budget	0.5 FTE				32,000 (GISC)	No separate GIS budget. Discret. includes ORPP + Budget + portion of EOBRED[1]					possibly	no specific GIS budget; no change at best
KCA	9.0 FTE	0	12,000 maint. only	0	20,000 (GISC)		none	none	none	none	from discret. fund	
DDES	4.33 FTE	5000	21,600	18,000	5,000	budget depends on projected rates of development in uninc. KC	desktop wkstatn upgrades	AV3.1	current levels	current levels	current levels	
PubHealth					12,000	no separate fund for GIS	plotter likely	maint / upgrades	no	current levels	some	
DCFM						CX funded. No separate fund for GIS						Some surplus which may be appropriated
OEM	1.0 FTE	0	135,000	0	0		yes	yes	yes	yes	yes	
REALS	4 FTE + 2 TLT (1 vacant)	6800	2000	2000	7700		yes	yes	more data mandated	lots more	no change	hinges on migration plan
GISC	19 FTE (2 vacant) [2]	100,000	77,350	33,750	189,921 [3]		current levels	current levels	Client Services – cost reimbursable	Client Services – cost reimbursable	current levels	
Parks	1.0 FTE (shared)	875	1965	1640	1105		little	not likely	little	current levels	little	
SWD	0.5 FTE	475	982	945	25,000		not likely	possibly AV 3.1	current levels	current levels	little	
WTD	4.0 FTE	3400	10,360	6560	4220	(same as WLRD?)	plotter / printer	yes	yes	yes	yes	
WLRD	4.5 FTE	3400	10,360	6560	4220	(same as WTD?)	no	possibly SQLServer	possibly	current levels	as needed	
KCIA					97,620	"discretionary" is actually their ITS/GIS budget, which is included in the overall Airport Administrative budget or for specific projects	current levels	current levels	current levels	current levels	current levels	budget includes money for application development.
Roads	7.0 FTE + 1.0 TLT	2500	9000	7000	2500	only 2 FTE are gull-time GIS (1 is matrixed from GISC), the rest have part-time GIS shared with other responsibilities.	yes	yes	yes	yes	lots	
Transit	6.0 FTE	22,500	15,000	15,000	3000	1 FTE is funded by fed. grant; 1 FTE is matrixed from GISC	current levels	current levels	current levels	current levels	current levels	
Sheriff					20,000		current levels	current levels	current levels	current levels	current levels	
Council					12,500	no separate fund for GIS						no specific GIS budget; money available as needed

[1] Executive Office Business Relations and Economic Development
[2] GIS Center also has employees matrixed to other departments (Parks, WTD, Roads, Transit), but for purposes of this study, these employees are counted in the departments to which they are matrixed.
[3] $147,000 represents appropriation authority for cost reimbursable expenses

People

Agency	GIS Staff – Number	GIS "Unit"	GIS Staff – Training	End Users – Number	End Users – supported by	End Users – Training
Budget	0.5	no	GISC	2	GIS Staff	No budget.
KCA	9	no	internally; ad hoc	70	GIS Staff	occasional ArcView for appraisers; ad hoc
DDES	4	no	ESRI, Netdesk	150	GIS Staff	in-house (demos / Q&A)
PubHealth	3[1]	no	GISC (Adv AV)	9	GIS Staff	GISC (Adv AV)
DCFM	0	no	none	3 + 15 [2]	ITS	ad hoc. very little
OEM	1	no	ad hoc	80 [3]	GIS Staff	in-house by GIS Staff and Microdata
REALS	6 [4]	yes	GISC	49	GIS Staff and ITS	in-house application specific
GISC	17 [9]	no	Classes, conferences, ESRI, etc.	N/A	N/A	N/A
Parks	1[5]	no	GISC, ESRI	12-15	GISC	GISC
SWD	0 [6]	no	GISC, ESRI	6-10	GISC	none
WTD	4	yes	GISC	30-40	GIS Staff	GISC
WLRD	6 [7]	yes	GISC, ESRI	~ 80	GIS Staff; WLR LAN	GISC
KCIA	1.5	no	GISC, ESRI	2	GISC	GISC, ESRI
Roads	7	no	Classes, conferences, etc	45	GIS Staff for that section	GISC
Transit	6	yes	Classes, conferences, etc	130	GIS Staff and LAN admin for some	GISC
Sheriff	4	yes	GISC	0	n/a	GISC
Council	2 [8]	no	GISC	0	n/a	GISC

[1] One in each Division (EH, EMS, EPE); none are full-time GIS
[2] 2-3 people who use GIS regularly but are not experienced users + 15 others who use internet mapping for projects
[3] This number is growing rapidly as more PSAPS are brought online
[4] One vacant
[5] 1 GISC FTE position is shared between two analysts
[6] 0.5 GISC FTE position is shared between two analysts
[7] 4.0 full-time + 2 shared
[8] Both use GIS regularly to support the Council, but their responsibilities are not primarily GIS oriented.
[9] Matrixed employees are counted in the departments to which they are matrixed.

Software: General Frequency of GIS Use

Agency	Every Day	At Least Once / Week	Less
Budget	1	1	1
KCA	Staff + 35	35	70 (appraisers – more every day)
DDES	Staff + ~20	~ 100	30 (mgmt and planners)
PubHealth	Staff		Users (desktop and internet mapping)
DCFM	0	a few	The rest for mapping
OEM	Staff + Users		
REALS	Staff		~20 users
GISC	Most staff		the rest (management)
Parks	Staff + 3-5	3-5	6-14 users
SWD	Staff	1-2 users	rest of users
WTD	Staff + ~9	15 users	10 users
WLRD	Staff + 15-20	20-30	rest of users
KCIA	1	1	1
Roads	Staff + ~25	the rest of users	
Transit	Staff + 10	10	rest
Sheriff	Staff		
Council	0	2	

Software: Frequency of Use by Product

Agency	ArcInfo 7.x		ArcGIS 8.x		ArcView 3.x		Extensions		Other
	GIS Staff	End Users	GIS Staff	End Users	GIS Staff	End Users	GIS Staff	End Users	
Budget	never			1 occas.	1 often	1 occas..	SpatAna3(1)		
KCA	daily		rarely		1 daily	70 daily	COGO Daily		
DDES	never		often	never	occas	all	SpatAna3(4) rarely; COGO occas.; 3DAna occas.		SQLServer (staff) IMS (staff)
PubHealth	never		1 occas.		3 often	all	3DAna occas.		
DCFM	N/A[1]					all		none	
OEM	never		occas.		daily	N/A			AliTrakker (all) MO AV Emulator
REALS	daily		rarely		often	occas.	COGO(staff); ArcPress		
GISC	daily		daily		daily		daily		
Parks	daily		occas		daily	occas			SQLServer(staff)
SWD	daily		occas		daily	occas – rarely			
WTD	occas		occas		daily	daily	SpatAna3 often; 3DAna occas.	SpatAna3 occas; 3DAna occas. (1-2)	
WLRD	daily		daily		daily	daily	SpatAna3 often; GRID occas	Lots	ERDAS (staff); ArcIMS (staff) XTools
KCIA	never		daily		never	never			
Roads	never		daily		?	all at least weekly	SpatAna3 occas; 3DAna rarely; ArcPress.		AutoCAD w/EaglePoint (daily)
Transit	daily		daily	2	?	daily	Network daily; others occas.	occas	ArcIMS, MapObjects (staff)
Sheriff	never	N/A[2]			daily		SpatAna3 often		
Council	never				often				

daily, often, occasionally, rarely, never

[1] No GIS Staff

[2] No End Users

Hardware

All GIS staff and end user workstations are Wintel based.

Agency	Workstations: GIS Staff	Workstations: End Users	Servers
Budget	(1) NT	N/A	no
KCA	(1) XP; rest 2000/XP	2000/XP	(3) SUN/Solaris 2.5 as data/app servers + 15 gb data storage [1] shared dept. servers for tabular/ acquired GIS data
DDES	(all) 1.7 gHz celeron / 2000	98 (all) – moving to XP	Production: HP netserver E800 / 2000 DDES enterprise: 200mHz Pentium Novell Netware for logins and ArcPress [2]
PubHealth	(1) 2000; (2) 98		no
DCFM	(1) defunct; (1) unknown	N/A	no
OEM	(1) XP	(6) P3 NT 40 gb	end user workstations (at PSAPS) act as local GIS servers
REALS	NT/2000/XP [3]	NT/200/XP	Dell Poweredge 4200
GISC	NT/2000/XP		• WILDFIRE – Alpha Server ES40, Digital UNIX 5.0a. Primary data server for enterprise GIS data. License server for ARC/INFO 7.x • ORCA – Compaq 8000, Microsoft NT 4. Central server for the KCGIS Center. License server for ArcView and ArcGIS; hosts a network install of ArcView 3.x that is used by WTD • HERCULES – www5.metrokc.gov, Compaq 7000, Microsoft NT 4. Web server for KCGIS Center's ArcIMS deployment. • KCGIS-SS1 and KCGIS-SS2 – Gateway E-4650, Microsoft Windows 2000. Support KCGIS Center's ArcIMS deployment. • NATASHA (a.k.a "The Doorstop") – Alpha Server 2100 Unix Test Platform. Will become surplus in 2003. • BADINOV – Micron Powerserver NT 4. Intranet web server for the KCGIS Center; development server for ArcIMS applications. • KCGIS-SQLDEV – Microsoft Windows 2000. Test server for SQL Server implementation. • Data Warehouse Server – Microsoft Windows 2000. A two-cluster system The warehouse server will be configured with SQL Server 2000, ArcGIS 8.x and ArcSDE for SQL. • KCGIS Center NAS – Quantum SNAP 4100 server, with 400 GB disk system. • EOC NAS – Quantum SNAP 2200 server, with 160 GB disk system. Small desktop system installed at the EOC for locally used shapefiles. • Test Server for ArcIMS (coming)
Parks	NT/2000	98/2000	Compaq Proliant 1600 (shared w/division); DNRPLIB for data storage
SWD	NT/2000 [3]	98/NT/2000	no (DNRPLIB at some point)
WTD	(2) NT, (2) 2000 [3]	98/NT/2000	Dell/2000 server; DNRPLIB
WLRD	moving to XP now	98/NT/2000	WLRNT6 – AV licensing; WLRNT11 – lic. mgr. and software DNRP1 – houses DNRPLIB
KCIA	(all) 2000	(all) 2000	no
Roads	(all) 2000	95/98/NT/2000 (mostly 2K)	ALR 9200 2000 Server
Transit	(all) 2000 (developers) XP for testing	95/98 /2000 – moving to XP	Multiple UNIX and NT servers for production, testing, lic. mgr. and data. Migrating all UNIX to NT in 2003
Sheriff	(all) 2000	N/A	NT file server (shared)
Council	(all) 2000	N/A	no

[1] servers will be phased out after Seattle translation is complete
[2] slated for replacement
[3] no plans to move to XP

Licenses

Agency	Arc 7.x	Arc 3.x	Arc 8.x	Spatial Analyst	3D Analyst	Network	COGO	TIN	GRID	ArcPress	RDBMS	Others	Getting New Licenses?
Budget		1 (3.2)	1	1									likely more Arc8 licenses
KCA	9 on SUNS	22	1 (AV only)	1			5 on SUNS						just purchased 10 AV; hope for consolidation of SUN/wildfire licenses after cadastral conversion
DDES		20-25 (3.1)	3 (8.1)	1					1	1	SQLServer	SDE, MO, IMS	ArcIMS, SQLServer, SDE, developer software likely
PubHealth		6 (3.1) + 2 (3.2)	1 (8.2) in EMS		1								Network Analyst (3.2); some desktop upgrades
DCFM		2 (3.1)											probably
OEM		3 (3.2)		1								103 AliTrakker Map Viewer	upgrade to ArcGIS at some point
REALS	1 (wildfire)	5 (3.2)					1			1			upgrades only
GISC	18 @ 7.1.2 [1]	20 (3.x)	9 @ A/I 8.x + 10 @ AV 8.x [1]	3 (3.x)	1 (3.x)	2 (3.x) + 1 (8.x) + 1 (7.x)	9 (7.x) + 1 (8.x)	1 (7.x)	1 (7.x)	2	SQLServer; Oracle	ArcIMS; Mr. Sid 1.4; ERDAS (2); SDE	This study will help with license planning – will likely change the mix, if not the numbers. Expect to see more demand for 3D visualization.
Parks		6										3rd party extensions	conversion to 8.x only
SWD		2											conversion to 8.x only
WTD		4 (3.1) + 1 (3.3)	5	1	1					1		3rd party extensions	conversion to 8.x only
WLRD		59 (3.1/3.2)	4 (8.2) + 15 unused	1	1			1	1	1		ERDAS Imagine, IMS	.NET
KCIA			2 (8.2)										upgrades only
Roads		35 (3.2)	4 (8.2)	1 (8.2) + 3(3.2)	1 (8.2) + 2 (3.2)	1	1			1 (8.2) + 4 (3.2)			yes (2004)
Transit	3 (7.2.1)	27 (3.1)	5 (AV 8.2) + 2 (AI 8.2)	1 (8.2)	1 (8.2)	2 (7.x) + 1 (8.x)		1 (8.2)			Oracle	MO	1 or 2 8.x
Sheriff		4 (3.2)		4									possibly AV 3.x
Council		2 (3.2)											

[1] Arc 7 and ArcGIS 8.x licenses and extensions are available to enterprise users

Applications: Enterprise

Agency	AVLib		ParcelTools		Sitetool		Doctool		MaintRec		Keytool		iMAP		ParcelViewer		Other
	Staff	Users	Staff	Users	Staff	Users	Staff	Users	Staff	Users	Staff	Users	Staff	Users	Staff	Users	
Budget	R	N	R	N	N	N	N	N	N	N	N	N	Of	N	Oc	N	
KCA	Of	D	Of	D	R	N	R	N	D	N	Oc	N	Of	D	Of	D	
DDES	N	N	R	R	Oc	N	Oc	N	N	N	N	N	Oc	?	Oc	?	
PubHealth	Of/N[1]	N	Of/N	N	N	N	N	N	N	N	N	N	Of/N	N	Of/N	N	
DCFM		N		N		N		N		N		N		D		D	
OEM	D	N	D	N	N	N	N	N	N	N	N	N	Oc	N	Oc	N	AliTrakker (Daily)
REALS	Oc	Oc	Oc	Oc	N	N	N	N	N	N	N	N	Of	Of	Of	Of	
GISC	D		D		Oc		Oc		N		N		D		D		
Parks	D	N	Oc	N	N	N	N	N	N	N	N	N	D	D	Oc	Of	
SWD	D	N	Oc		N	N	N	N	N	N	N	N	Oc	Oc	Oc	Oc	
WTD	Of	Of	Oc	Of	N	N	N	N	N	N	N	N	N	N	R	Oc	
WLRD	N	Of	N	Oc	Oc	N	Oc	N	N	N	N	N	Oc	?	Oc	?	XTools
KCIA	N	N	N	N	N	N	N	N	N	N	N	N	N	R	N	N	
Roads	D	D	Of	R	N	N	N	N	N	N	N	N	R	D	Oc	Oc	
Transit	N	N	N	R	Oc	N	Oc	N	N	N	N	N	?	?	?	?	AVMaps
Sheriff	Oc		Oc		N		N		N		N		Oc		Oc		
Council	Of		Of		N		N		N		N		Of	Of	Of	Of	

D: Daily; Of: Often; Oc: Occasionally; R: Rarely; N: Never

[1] Of/N: EH Staff Often and EMS Staff Never

Applications: Other

Agency	Non-Enterprise apps	Develop your own?
Budget	Census app developed by Transit	
KCA	Data maint/transfer developed by Seattle	internal AML-based for plotting, updates and access; Avenue app for appraisers for access, analysis and output
DDES	Base2	Avenue apps; IMS mapsets and apps; other data access and maintenance apps
PubHealth	Base2	
DCFM	-	
OEM	AliTrakker (ArcView)	
REALS	-	voter apps; data maintenance; simulation processes.
GISC	StreetTool	Occasionally customize project-level ArcGIS docs for editing purposes
Parks	-	AML, Avenue, IMS, SQLServer apps for data maintenance, access and output
SWD	-	
WTD	FIRS	AML, ArcView applications, and IMS mapsets
WLRD	-	IMS mapsets and various utility scripts in AML and ArcView
KCIA	-	LeaseEdit and LeaseQuery developed by GISC
Roads	StreetTool	some AML; CARTS (Citizen Action Request Tracking System) online in 2003 – developed by ITS SPG
Transit	AVMaps	multiple large AML, Avenue, MO applications
Sheriff	-	
Council	-	

Data

Agency	Access to GIS Data	Connecting Business Data to GIS Data	Connect to /plibrary?	Connect to /plibrary2	Connect to SDE?
Budget	locally; wildfire	ad hoc joins DDES permits geocoding and parcel matching	never	daily	never
KCA	locally; wildfire; own servers	ad hoc joins snapshots of SQL data to generate shapefiles KingView app offers live SQL snapshot linked to static shapefiles;	daily	daily	rarely to never
DDES	own servers; wildfire; local instance of SDE	import/export from Informix <-> mdb dbf; linked by PIN	daily to weekly	daily to weekly	rarely
PubHealth	wildfire; occasionally locally	ad hoc joins Vista software – db of population projections and own business information	daily	daily	never
DCFM	locally; ArcView project they use connects to the Parks server	KCOWNED layer created as snapshot from Fixed Asses System	never	never	never
OEM	quarterly download of specific /plibrary2 shapefiles	E9GIS and AliTrakker software	never	quarterly	never
REALS	locally; own servers; wildfire; web	business data highly secure by law; static set of data for GIS use	daily	daily	never
GISC	wildfire; SDE; personal GDB	ad hoc joins programmatic	daily	daily	daily
Parks	locally; wildfire; DNRPLIB	ad hoc joins ParkView and PSAFI applications	daily	daily	occasionally
SWD	locally; wildfire; DNRPLIB	unknown	daily	daily	never
WTD	locally; wildfire; DNRPLIB	ad hoc joins	daily	daily	never
WLRD	locally; wildfire; DNRPLIB	ad hoc joins programmatic weekly access of SQLServer tables to create Hydrogauge shapefile	daily	daily	only for IMS
KCIA	Programmatic to SDE on wildfire; occasional access to plibrary	programmatic only	never	rarely	
Roads	locally; own servers; Transit servers	hoping to connect via SQLServer in 2003	daily	daily	occasionally
Transit	own servers; weekly downloads of wildfire data; corporate Oracle database	loading coordinate info into Oracle for downwind apps; downloading Oracle info and attaching spatial information; programmatically / applications	weekly automated download [1]	weekly automated download	never
Sheriff	locally; wildfire	snapshots of SQL data to generate shapefiles	never	daily	never
Council	wildfire	they don't	never	often	never

[1] Will only be downloading shapefiles beginning in 2003

Migration: General

Responses to the question "Is a migration necessary?" were universally "yes," although some respondents expressed reservations about timeline

Agency	Why Necessary?	Got a Plan?	Awareness of ArcGIS – GIS Staff	Awareness of ArcGIS - Users
Budget	Have to keep up with the times, don't want to get stuck in the old software.	no	little	N/A
KCA	Agency: Wants proof that it works before the cadastral data is migrated. Wants cadastral maintenance processes to remain in Arc7 until a solid implementation/testing can be developed. Enterprise: Serious reservations if no true financial and/or efficiency-oriented benefit exists	no	somewhat	
DDES	Back-end licensing is potentially lower (context was IMS); Lower costs overall	yes	very	not, but looking forward to increased stability
PubHealth	Agency: Less critical for end-users than GIS staff Enterprise: New technology is inevitable	no	somewhat	not
DCFM	Agency: Would like to be able to share documents with consultants	no	not	N/A
OEM	Industry is moving toward Arc8 environment	no	little	not
REALS	Agency: Only if everyone else does it. Don't want to be left behind Enterprise: We'll be forced into it	no	some	
GISC	N/A		very	N/A
Parks	Inevitable. Compatibility with partner agencies and colleagues; loss of support for legacy technology	no	varies	not
SWD	Inevitable. Compatibility with partner agencies and colleagues; loss of support for legacy technology	no	varies	not
WTD	Implementation of GDB; Industry is heading that way – must keep pace with technology	no	some	not - confused
WLRD	Inevitable, so it's irrelevant what we think. ESRI is going there, we must follow.	no	some	not
KCIA	Coordinated migration is necessary to maintain ongoing support	N/A [1]	little	little
Roads	Ability to work with industry-standard RDBMS. No choice, ESRI is moving forward. Ability to tie to more generic business functions.	in progress	some	not
Transit	Industry is going this way – go along or be left behind Agency: will reduce cost by allowing separation from UNIX environment	yes	very	
Sheriff	Support for ArcView 3.x will stop eventually	no	little	N/A
Council	Don't want to be left behind	no	not	not

[1] Implemented ArcGIS at inception of GIS program

Perceived advantages of ArcGIS:

Advantages of ArcGIS	Number of responses
Interface and tools:	
Editing functions are better	3
Nicer interface	3
Improved data administration tools	3
More sophisticated / better tools	3
Moving away from the command line environment	2
Many extensions are now built-in	
Data	
GDB	3
Topology rules are promising	2
Versioning (if it works)	
Better integration of business and spatial data	
Potentially better data sharing	
Potentially better synch between coincident layers	
More robust from database standpoint (vs. INFO)	
Data storage in integer form	
Better connectibility to external RDBMS	
Relationship classes	
Less complex data model than Arc/Info 7	
Potentially easier data manipulation	
Customization	
More open standards – less proprietary environment	3
Customizing is in-line with other Windows env.	2
Will help end-users familiar with Access and have trouble with ArcView data model	
Other	
Standard set-up	
Will facilitate large data projects like TNET	
Increased stability	
Metadata creation	

Perceived Disadvantages of ArcGIS:

Disadvantages of ArcGIS	Number of responses
Migration issues	
Learning curve / training issues	5
Data conversion	3
Lack of backward compatibility	3
ESRI approach of “anything goes - fix it later” (consistent release of buggy / incomplete versions)	2
Cost of licensing	2
Document conversion	
Lack of available documentation / bug history from ESRI makes every problem a bigger problem	
Stability issues	
Lack of awareness of limitations	
Timing	
Difficult programming language and lack of scripting environment precludes programmatic customizations by users	
Still waiting for proof of promised functionality that has yet to be delivered – any migration assumes/requires that functionality	
Confusing licensing	
Data	
Projection issues with shapefiles	
Rule-based GIS may not be the appropriate path	
SDE as single point of failure	
Retooling	
Gotchas and hidden pitfalls (unknowns)	2
Can’t convert AML	
Retooling legacy applications	
Can’t customize automated data processing	
Interface	
One map per document limitation	3
Over-empowering users	
Manipulating tables is more difficult	
Can’t uncover functionality without customizing	
Labeling	
Printing problems	

Migration: Has Your Agency Migrated?

Every agency that answered "no" to the question "Have you migrated some/all of your operation to ArcGIS" answered "yes" to the question "Do you intend to?"

Agency	Already migrated some/all of your operation to ArcGIS?	What is your timeline?	Status?
Budget	no	during or after Enterprise migration	
KCA	no	during Enterprise	
DDES	yes	Users to AV3.2 by 6/03, possibly later. SDE by 5/03. TNET is a factor. Before the enterprise	about 2/3rds of mapping and analysis has moved to Arc8 using legacy data formats
PubHealth	yes	After the enterprise.	light use among GIS Staff; concurrent use with AV3.2.
DCFM	no	If enterprise migration is very far off, they'll implement AV and migrate when necessary. Otherwise will implement ArcGIS	minimal GIS functionality, migration not an issue - the decision is which version to re-implement.
OEM	no	Tied strongly to Microdata migration. Likely after the enterprise	Microdata (3rd party) software is built on AV technology. They plan to migrate, but likely not before all PSAPS are implemented.
REALS	no	During of after enterprise migration. Hope to see it far enough in advance to get into budget cycle.	Need SDE training and awareness, then will feel comfortable migrating.
GISC	yes	Before enterprise – hopefully GISC makes mistakes so that others don't have to.	Hope to have AVLib / ParcelTools in place before final migration – still revert to AV when this is more efficient; Apps/Ops group uses whatever is appropriate to support operations
Parks	yes	Phased as appropriate. During or after enterprise migration	Some use among the two analysts, mostly for map production.
SWD	N/A	N/A	implementing GIS at this time.
WTD	yes	During of after enterprise migration.	GIS staff using ArcGIS and ArcView in parallel; users on AV3.x
WLRD	yes	follow/coordinate with enterprise	GIS staff using ArcGIS, but nonexclusively; users on AV
KCIA	yes	Installed ArcGIS at inception of GIS program	Ongoing use of ArcGIS via ArcMap applications LeaseEdit and LeaseQuery.
Roads	yes	As soon as possible/practical depending on budget. Marginally based on enterprise, but will move regardless. TNET is a factor.	GIS Staff using ArcGIS, nonexclusively; users on AV
Transit	yes	2003, as part of their NT migration. Toward end of enterprise migration. TNET will come afterward. Users and core applications first, then data, then batch processing rewrites.	GIS Staff, power users using ArcGIS, 2 exclusively; users on AV
Sheriff	no	when necessary	more interested in the data conversion side, which won't be affected significantly by the GIS migration
Council	no	After the enterprise, but timeline is flexible	light GIS use, mostly for mapping. Flexible

Migration: Has Your Agency Migrated: YES

Agency	Version From – To	Will you be moving everyone immediately / at all?	Staff ramp-up time?	Has it helped or hindered?	Do/will you use SDE?	Has it changed the way you do GIS business?
DDES	8.2 to 8.3 by end of 2/03	No. End users will be upgraded to AV3.2, which can connect to SDE without Arc8 overhead. End user apps will be replaced by web server/browser apps.	5 mos., including SDE for GIS Staff	helped – map production is faster	Wildfire. Implementing own.	Not significantly. Hope to get rid of ongoing spontaneous corruption of shapefiles.
PubHealth	8.2	GIS staff and power users at own pace; all within the next few years.	1 mo. constant use to get comfortable	helped in general. Uses AV when ArcGIS is a problem	no plans to	no
GISC	Arc/Info and AV to 8.x	yes, eventually	still ramping	hindered. Some help with better user interface at ArcGIS, but an inordinate amount of time is spent troubleshooting and creating workarounds	Daily for ArcIMS development; sporadically otherwise. Client Services, occasionally	Not yet – still revert to old versions of software when needed; Extra time required for application development; can't take full advantage of new technology because it doesn't work, only the most basic use of Arc8 is truly productive
Parks	Arc/Info and AV to 8.2	yes, eventually. Staff first, users by 2004	still ramping.	neither	minor, infrequent, always with ArcMap	very little
WTD	AV to 8.1 (8.2?)	no plan to move users	still ramping after 9 mos.	helped so far, but only used when it offers an advantage	no plans to	hasn't
WLRD	Arc/Info and AV to 8.2	GIS staff yes. Not sure about users, will depend on individual use and frequency	still ramping	neither.	only for ArcIMS	Multiple documents are now required for a single multi-map project. Otherwise no change so far.
KCIA	8.2 [1]	already done	6 mos.	N/A	yes, but not ad hoc or interactively	no
Roads	AV 3.x to 8.2	Yes, eventually, including users	months.	both; no significant impact	only via StreetTool	Not yet, but will likely change the business plan, especially with the potential of the GDB
Transit	to 8.2	Power users transition at own speed; others will not move until Transit enterprise reevaluation	couple of months for savvy users. Expect difficulty for end users	Hindered at first; helped from a cost standpoint.	just starting with own implementation	Not much yet – new tool for the same business. Expect changes in the future as GIS becomes more integrated into business

[1] Implemented ArcGIS at GIS program inception – no real "migration."

Perceived Effects of Enterprise Migration

Agency	Effects on Agency User Base?	How Will the Enterprise Migration Affect Your Agency's Business?	Special Problems re Agency's GIS / Overall Business?
Budget	None – will be invisible to them	• Should make GIS business more efficient • possible issues with data translation from outside sources	learning curve and lack of budget
KCA	Little or none as long as they can use AV3.x to access shapefiles. Greater effects on Data maintainers. Loss of access to GIS Coord. for handling non-routine GIS work; will need tools in ArcGIS to do the same job.	• Huge data conversion effort during conversion • Potential integration backlog • Hopefully better and more access to data • Potentially more opportunity for customization	Data conversion and access
DDES	Total change of tools. Better availability/uptime. Huge impacts on GIS Staff who will have to adapt technology and provide new tools	• Likely no impact on the department. • Better, faster, more reliable access • Will facilitate data exchange for GIS staff • Improvement of planning layers due to ability to build topology/update rules	Enterprise permitting system is likely to undergo drastic change in the next year or two – integration of GIS will be a significant issue before, during, after
PubHealth	None, as long as shapefiles are maintained	not substantially, as long as shapefiles are maintained	none – no SDE, no internal RDBMS, they only need access to /plibrary
DCFM	None	Not at all	none
OEM	None, as long as shapefiles are maintained	Possible small efficiency increase as ArcMap may make it easier to make nice maps for the PSAPS	Need shapefiles available at least until Microdata migrates the 3rd party software
REALS	None – will be invisible to them; GIS staff will need additional training	Not sure at this point.	none
GISC	N/A	Will work more closely and integrate better with business applications and other KC GIS workshops, and hopefully other jurisdictions (a la TNET)	avoiding pitfalls that temporarily (hours to months) degrade delivery of enterprise services (data warehouse applications)
Parks	With proper training and preparation, it hopefully will only be a minor disruption as users get used to the new tools	Will facilitate more effective use of GIS, but won't change underlying business	Migration of existing map creation applications.
SWD	Little if any. Users are inexperienced and won't know the difference.	• Will help ensure synchronous, cross-division environment • Ensure compatibility and collective collaboration	• Maybe related databases • Possibly mastery of new GIS skills at user level.
WTD	Little if the agency has already migrated.	• Data management will be better in RDBMS (versus flat files). • Central well-managed data store should streamline operations.	• Connections to existing RDBMS will need to be changed / updated. • Multiple map documents per project will force a reorganization of how projects are handled.
WLRD	Users will require a lot of support at the beginning	GIS Center move to GDB will force agencies to do likewise	• GDB environment will force them to go to RDBMS • GIS staff does not control user licenses – can't force migration on unwilling users • WLRD LAN staff will need to be brought up to speed quickly
KCIA	Will eventually have a significant, although gradual, impact as GIS becomes more integrated within the agency	It won't – they don't use coverages or shapefiles	security of sensitive airport data
Roads	More capabilities and greater ease of use	Will allow better integration into enterprise	issues associated with TNET
Transit	• No effects on end-users as planned • Effects on power users and GIS staff will be dealt with on an individual level • Shift in roles and responsibilities of GIS staff – forced specialization means more reliance on other analysts for support	• Likely no effect on the Transit migration • Possible unknown impacts if licenses are consolidated	• License consolidation, if it happens • The move to SQL Server has unknown impacts, but likely will not be an issue
Sheriff	GIS staff are the user base – hope the adjustment won't be too difficult	Not much. Will follow GIS Center lead	Reliance on shapefiles.
Council	N/A	Likely not at all	Likely none

Perceived Migration Challenges

Agency	Biggest Challenge for Your Agency?	Biggest Challenge for the Enterprise?
Budget	• Training and ramp up • hardware	• Hardware issues for upgrading • Connections among departments/data flow will suffer because of differences in software and utilities. • Unexpected possible changes to standard practices that haven't been thought of yet. • Changes in business functions. • Changes in lines of communication both within and outside of King County. They'll have to be reconstructed based on new processes. • How will it integrate with outside viewers, i.e. users, sources, providers
KCA	Retooling people to use the new applications and tools	• Agreeing on what to do and developing the plan • coming up with additional funding to implement the actual migration
DDES	• migrating end-users; convincing them of necessity and desirability of change • providing adequate replacement applications	• migrating end-users; convincing them of necessity and desirability of change • providing adequate replacement applications
PubHealth	none	It will be a huge challenge
DCFM	Making the decision on which GIS software to implement	N/A
OEM	Timeline. May need interim solution between enterprise migration and Microdata migration	Data conversion to GDB format, especially agency data
REALS	Scheduling, planning, money	Dealing with the scale / scope of the implementation
GISC	Loss of productivity – hundreds, if not thousands of hours will be spend simply dealing with software conversion	• Loss of productivity • Redesign of business processes to take advantage of ArcGIS • Recreation of data models for cadastral and other enterprise data sets – and correlated to that, devising the distributed data maintenance mechanisms for ongoing use.
Parks	• Reduced future support • Finding time for support to plan, implement and troubleshoot what GIS Center has to migrate	• Coordinating the actual migration. • Finding all the users and making sure no one is left behind.
SWD	User training	• Coordinating the actual migration. • Finding all the users and making sure no one is left behind.
WTD	• Learning curve for GIS staff and users • Transferring data and maps • Reorganizing data	• Learning curve for GIS staff and users • Transferring data and maps • Reorganizing data • Making sure that no one gets left behind • Maintaining support for member agencies that may be at different stages of the process
WLRD	Lack of administrative control on GIS staff workstations	• inertia / resistance to adopt • Training – what classes, timing is important; will need to coordinate the migration and the training plan
KCIA	None – they're already there	• User support • Ramping up support staff (i.e. LAN)
Roads	• Training • Understanding what it can do and implementing it effectively	• Legacy applications. • Running duplicate / parallel systems
Transit		• Migrating the KCA applications: time, effort, data • Dealing with multiple environments • converting everything in a timely manner • New database design and a new approach. • Identifying all business requirements for member agencies.
Sheriff	Learning and adapting to the new environment	• Implementing the actual migration / transition • Deciding how long to run everything in parallel and support it all • deciding when / whether to stop supporting ArcView 3.x
Council	Learning curve for individuals	

Migration of Data

Agency	Migrating In-House Data to GDB?	Expected effects of Enterprise Migration on Agency RDBMS (and vice versa)?
Budget	Sometime after the migration - no need now	N/A
KCA	Eventually, likely during the enterprise migration. Will want to incorporate parcel data layers with ESRI's Parcel Data Model.	Complications if they try to integrate the Assessor's SQL Server database with the GIS database. Most likely there will not be a direct maintenance connection to the Assessor side.
DDES	Data conversion 6/03; implementation of special features of the GDB (rules and relationships) will follow when SDE admin is naming and grouping layers for that purpose	DDES layers maintained in SDE should not have to be converted to coverage form in order to be posted. We need to find another way to accomplish replication/posting of spatial layers. Residual attribute items from coverage internal items should be dropped on conversion as they are no longer useful in output formats (SDE, shapefile).
PubHealth	Probably eventually, no time soon	N/A
DCFM	N/A	N/A
OEM	Only if / when Microdata migrates to GDB format	N/A
REALS	Not sure – need to investigate feasibility and if they even can	legal requirements – Oracle connections for rec/elec information may be problematic Some items may have to go into Oracle tables – not sure of effects of that. GIS is using SQL and Access, with lots of legacy apps and information.
GISC	Already doing so on a project basis where use of personal GDB can increase efficiency. We attempted using SDE for project data with disappointing results. Otherwise, we do not maintain in-house data. The exception is a small library of commonly used shapefiles accessed for mapping purposes. Most likely these will not be converted until the benefits outweigh those of shapefiles.	N/A -No RDBMS for business (Client Services) use.
Parks	Probably. Will require lots of planning and design. Timing depends on that and staff ramp-up	none at this time
SWD	N/A (no data exists)	N/A
WTD	As soon as possible	N/A
WLRD	Don't want to be first – will follow enterprise migration. Currently experimenting with personal GDB	N/A
KCIA	Yes. New data certainly, most likely not old data. New engineering drawings in CAD GIS.	Not sure. Just now planning and setting up agency RDBMS, and would like to build on / integrate with existing GIS data in SDE. Any solution needs to be as simple and integrated as possible.
Roads	As soon as possible	hard to tell.
Transit	Yes, but for data maintenance but not general use/access. Shapefiles for user access and MO applications. Timeline is 2003.	No impact from the enterprise side; eventually will need the ability to post shapefiles and geodatabases.
Sheriff	When it becomes necessary (or at least practical/desirable). Already has SQL Server, so should be well prepared when the time comes	None. SQL Server is already in use, so no problems expected
Council	N/A (no data)	N/A

Geodatabase Data Warehouse

Agency	Thoughts on implementation?	GDB DW: Foresee Problems Attaching/Using?	GDB DW as primary data source: Timeline?
Budget		Use of ArcView 3.2	After everyone is comfortable using ArcGIS
KCA	• Communication during the process is essential • Deciding how long to maintain shapefiles is an issue	AV3.3 will likely stay as it's easier for end users. Cost of AV8 licenses will be an issue if they're forced to migrate.	2 years – need time to make sure drafting crew has the hardware and training to run Arc8
DDES		• Network latency to DDES • Topology relationship with Planning layers necessitates local copy of parcels, replication of changes/ change detection.	Early 2004
PubHealth		Yes, but not sure what type. Problems won't be severe, as GIS is supplemental to their business functions	6 or more months after migration
DCFM	N/A		
OEM	Persistence of maintenance and availability of shapefiles is important		In no hurry; can wait a few years
REALS	N/A		
GISC	N/A		
Parks	no		
SWD	N/A		
WTD		Educating users to use the RDBMS instead of flat files for data viewing/export.	End of the year
WLRD	• Need serious effort by enterprise for training: maybe analysts first, followed by end-users. • Put the implementation plan into writing. • Discussion about db rules needs to be open.	• Confusion over which is the "right" data source to use; inability of end users to distinguish data sources • coordinating with their LAN group to provide connections and support • Serving/supporting ArcView 3.x users will be a difficulty.	Not this year. Maybe 2004
KCIA	need to maintain security of sensitive data	Network speed	Doesn't matter – they already use SDE
Roads	Communication is important	Probably not, but training will be important here	New data sometime mid 2003 to mid 2004. Legacy data later and will take longer
Transit	This will be the key to the RECDNET issue.	• It seems fine for data exchange, but they'll still use shapefiles for end users • Resolving network issues (Novell, etc.) may be problematic	More concerned with "how" than "when." A well thought-out / conceived plan and implementation with input over speed
Sheriff	SQL Server will be a good platform – it's great for serving lots of data to many users. Oracle is good for OLTP data operations, editing of large datasets. And the cost savings offered by a SQL Server solution is significant.	Unsure what data access will look like. Will have to build a front-end for users. Users are familiar with tables, and with Excel, but not so much with SQL queries and database extractions. Access works well as a front-end, and it's easy to set up parameter queries for users to use and export to Excel, but it will be necessary to educate users so they know what they're looking at, how to work with it appropriately.	Hard to answer. Want to be kept abreast of progress. Need a guidebook describing what's available. Teach users SQL, facilitate data downloading.
Council			Doesn't matter – they expect to be among the last to change.

Migration of Applications: Agency

Agency	Plan for Migrating Agency Applications?
Budget	N/A
KCA	Not yet
DDES	• Base2.apr (Arcview3) conversion is scheduled to be completed by June. • Atlases (Zoning, CPLU) are already maintained in ArcMap. • Data maintenance tasks will be converted after June: table import/export.
PubHealth	N/A
DCFM	N/A
OEM	N/A
REALS	no plan yet
GISC	no plan yet – few
Parks	Parks will need to evaluate / prioritize limited time of Analysts who will be converting legacy apps
SWD	N/A
WTD	FIRS will go away. The few others will be evaluated.
WLRD	N/A
KCIA	Applications already in ArcGIS
Roads	N/A
Transit	Already doing this. Started in 2002 as part of their NT migration. Will be finished in 2003. Primary User Interface applications first, then back-end utility, then less-used back-end applications with a small number of users.
Sheriff	No GIS applications. Have some database apps but those won't be impacted by GIS migration.
Council	N/A

Migration of Applications: Enterprise

What Sorts of Enterprise Applications would you like to see?	Number of responses
Quick and easy map production with adherence to cartographic standards	5
Parcel Tools replacement	5
legible annotation this time..	
on-the-fly overlays of other data and imagery	
make it portable to allow local data access for users in the field and remote facilities where bandwidth is limited.	
AVLib replacement	5
add access to local information	
We need enterprise-wide mapping production and data access that can deal with shapes, GDB, in ArcView, Arc8 and MO environment, and is deployable against internal databases and data warehouses. Envisions a COM or DLL object.	
Remove the views.	
Continued development of iMAP / ParcelViewer	3
Include a map with iMAP D/D report	
specialized smaller apps (datasets) for specific functions for use in the field	
Census data viewer (hook to property)	
Print quasi-official Assessor maps	
Query application – maybe web-based. Display the 50 most-looked at data items and make your own query.	
Real-time updates of cadastral and other data	
Doctool replacement	
Direct posting of shapefiles	
Enterprise data conversion from non-GIS or external data sources (table conversion, etc)	
Streets application	
Metadata tools	
In general:	
Access to data	2
Integration of imagery into existing and future applications	2
lightweight browser based end-user solutions that don’t require exorbitant cost of ArcMap licensed seat	
keep current functionality available	
improvement in metadata (quantity and quality rather than the app)	
Integration of survey with assessments	
Incident mapping	
Web-based apps – mapping apps, they’re getting better but are still clunky	
Better quality maps	
It would be nice if Base2 assets could be ported to a web-based interface	
Standard graphic/display library, especially of countywide maps: bus routes, park systems, etc	

Support from GIS Center

Agency	In General	Help migrating?	Training?	Data				Applications?	Other?
				storage	conversion	creation	maintenance		
Budget	Availability for answers to quick questions	Yes, QA especially	Yes	Yes	Yes	Yes	Yes		
KCA		Yes	Yes	Yes	Yes	No	No	probably	Data dissemination to other agencies / public
DDES	Technical collaboration implementing topology for Parcel layer								
PubHealth	• Availability for answers to quick questions. • Documentation with explicit changes (old to new) and how to use the new implementation		Yes, with effective timing						
DCFM	• Communication and follow-through • Amount of support needed will be in direct proportion to the number of users	Hardware requirements	Yes						help accessing /plibrary
OEM	Communication: timeline before and during migration, status updates, layers in GDB; training offerings								
REALS	desktop support	Yes	Yes					Yes, but no money	
GISC	N/A								
Parks	Coordinate the sharing of knowledge/experiences among early and late adopters	Yes	Yes		yes			Training and technical support	map production
SWD			Yes, (this is the key)						
WTD	• Recognize/address DNRPLIB • Communicate changes early		Yes, especially SDE					Modification of WTD apps	Support of applications developers skills development in member agencies
WLRD	• GIS Center must take lead role, make mistakes first so others can avoid them • Share information at both Technical Committee and User Group levels								
KCIA									
Roads	• Communication, especially what to avoid • Build on/to the future instead of the present • Education of end users	Yes	Yes	Yes	Yes	Yes	Yes (data will be a big element for them)	Yes	
Transit			Maybe						
Sheriff		Yes	Yes					possibly	
Council	Yes, lots!	Yes, especially installation	Yes					no need for dedicated apps if enterprise apps are in place	

Using ArcGIS: Likes

What Do You Like?	Number of responses
Map output looks nicer	2
Faster	
Potential of data mirroring	
Customizing seems easier	
Data management with ArcCatalog	
Metadata tool	
Color palette	
reads data seamlessly – easier to browse data	
Resolution of “where is” on document open (vs. 3.x)	
More built-in functionality with respect to available data source types	
snapping is intuitive	
runs on NT	
open environment	
makes it easy to implement cartographic standards	
easy to print panels for large maps	
User Interface is nicer than command line	
table manipulation is easier	
arc manipulation is easier	
copying features between layers is easier	
displaying and using raster layers is easier	

Using ArcGIS: Dislikes

What Do You Dislike?	Number of responses
Odd limitations to map output. Making the maps is tricky.	2
can’t just casually do programming	2
topology (lack thereof in 8.2)	2
“anything goes. Fix it later” – not a finished product	2
Transparency requires that all other layers be rasterized – increases file size and creates printing problems.	
Rasterized colors do not match vector versions.	
PDF output format is not standard – different PDF entities output different colors for the same input.	
Manual labeling environment is inferior to AV3.x.	
Known relations sometimes greyed out for large files.	
File-size bloat with .mxd format	
No way to recover a project in ArcMap	
Management of projection files for shapefiles	
One map per document	
Plot file size explodes without warning with use of transparency – rasterized all layers beneath	
lack of stability	
sometimes unable to save files to the server “file is locked” even there’s no way it could be	
no image catalogs	
identify picks everything in vicinity of pointer unless you explicitly turn off selectable layers	
templates are unreliable	
ArcMap – shrinking scalebars, even though nothing has been touched. Must recheck every time you plot.	
Changes in colors without warning – graphic items turn into black boxes	
editing a line dense with vertices – select the line, and the vertices become very large and meld into a big blue line – can’t just pick one.	
can’t generalize	
need to go to ArcEdit for certain editing tasks	
new lingo without cross-reference – hard to find functions in the Help because the names have been changed.	
clunky with editing. Confusing, sometimes not very functional	
tends to spawn user problems	
daunting amount of power for some end-users – too many tools for their needs/uses	
concerns over automated processing	
versioning does not work	
incompatibility between software versions	
does not perform as advertised	
table design is difficult	